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National Wood Products Extension Program

FY90 Annual Report



Cooperative Extension System



Cooperative Extension Service
University of Wisconsin-Extension



USDA - Forest Service
Forest Products Laboratory

United States
Department of
Agriculture



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The National Wood Products Extension Program

... *Opportunities for Technology Transfer*

The importance of wood as a unique, renewable, energy-efficient raw material continues to increase in the U.S. and abroad. Serious lags in the adoption of new wood products information and technologies need not hinder the effective use of wood and the development of wood-based industries. Significant opportunities exist to improve the growing, harvesting and marketing of timber, the productivity and competitiveness of wood-using industries in rural America and the use of wood by consumers.

For 75 years the U.S. Forest Products Laboratory (FPL) has been a world leader in all aspects of fundamental wood products research. FPL has helped extend the world's supply of wood through more efficient raw material use, through increased product longevity, and through creative product development. Wood products research information from FPL and other agencies and universities is available and needed to help revitalize America.

The National Wood Products Extension Program, located at the FPL, facilitates the transfer of wood products technology developed at the FPL and elsewhere, through the nationwide Cooperative Extension System. In this way, Extension is strongly linked with important national wood products technology transfer efforts of the Forest Service, other federal and state agencies, and industry.

The National Wood Products Extension Program publishes the *Extend* newsletter designed to inform Extension personnel about current wood products research information and educational materials. Other activities include the development of national communication networks for disseminating wood information and for targeting technology development and utilization (E-MAIL and computer bulletin boards), the development of educational packages and training materials (full-text databases and CD-ROM discs), and professional consultation on wood use.

The National Wood Products Extension Program is funded by ES-USDA through a cooperative agreement with the University of Wisconsin Cooperative Extension Service and with major support from the FS-USDA, Forest Products Laboratory at Madison.

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COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF WISCONSIN-EXTENSION



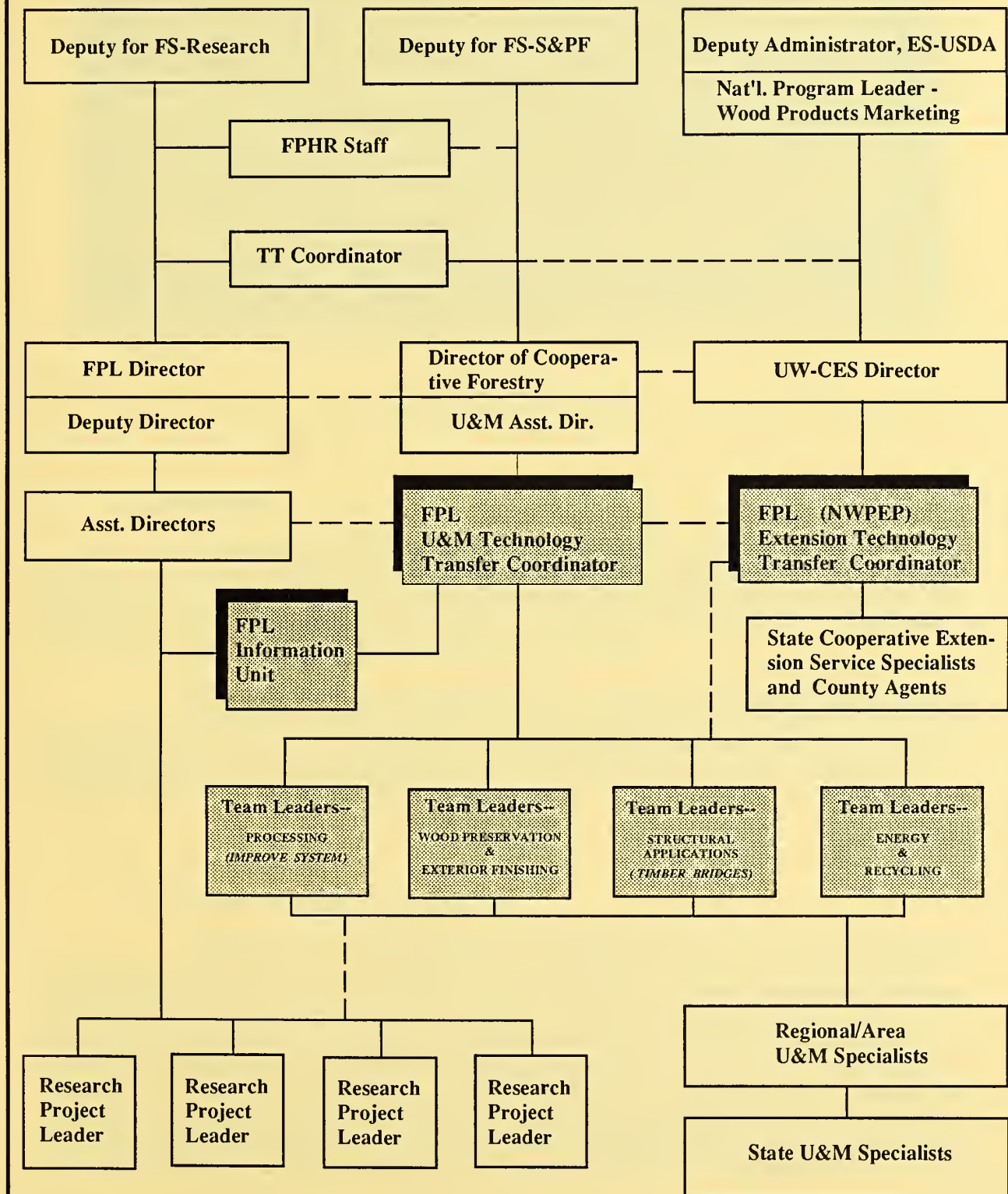
USDA - FOREST SERVICE
FOREST PRODUCTS LABORATORY



COOPERATIVE EXTENSION
SYSTEM

Technology Transfer Organization

USDA--FS--Forest Products Laboratory, Madison



Continuing steps have been taken during FY90 to more fully utilize and integrate University resources with those of the Forest Products Laboratory and national networks. These activities anticipate the growing use of electronic technologies which offer unique potential for cost-effective information transfer through the Cooperative Extension System and elsewhere. Our efforts vigorously complement and support several national and state pilot programs to utilize new technologies, such as E-MAIL and CD-ROM. Examples of work completed and underway demonstrate exciting opportunities for developing a wide range of quality educational/training materials and information packages. These activities also presage cost-effective national communication linkages for this collaborative wood products technology transfer effort between the Cooperative Extension System and the Forest Service.

FY 1990 Activities

1. Personnel

A major upgrading of program capability occurred in March with the hiring of F. Robert Mosdal as an Information Processing Consultant. He is a full-time academic staff member of the UW-CALS School of Natural Resources assigned to the National Wood Products Extension Program (NWPEP) at the Forest Products Laboratory (FPL). (This effectively *doubles* the program staff.)

Bob has provided leadership and strong support for several joint activities of NWPEP and FPL. Among these were the development of full-text databases and the custom wood-related CD-ROM disc. He will play a significant role in the further development of the E-MAIL potential and in linkage to the national Cooperative Extension System Communications Network.

2. Building Computer Networks

Collaborative work continues for establishing electronic communication linkages with Cooperative Extension System (CES) professionals and others nationwide. Major efforts to date have involved the completion of local connections between the NWPEP microcomputers and University of Wisconsin mainframe computers (WISPLAN and MACC). It is now practicable to send information files to any CES professional having an electronic mail address (e.g., Bitnet or Internet) via the nationwide (and international) E-MAIL network. It is currently possible to access Wisconsin Cooperative Extension Service staff down to the county level by E-MAIL through the Extension WISPLAN computer network. These accomplishments predate the completion of the National CES Communications System now under development.

E-MAIL provides the added capability of distributing formatted Post-script files (ASCII) anywhere on the network which can be directly printed on Post-script laser printers. Documentation of this capability is being demonstrated on the Wisconsin WISPLAN network and elsewhere.

Extension and other professionals can access the Wisconsin WISPLAN Bulletin Board for viewing and downloading newsletter and other information files. This capability will be expanded as the WISPLAN staff expands its services.

NWPEP staff acknowledges the excellent support given to this effort by the WISPLAN staff, UW-Administrative Data Processing staff, Madison Academic Computing Center, UW-Extension Communications Development Center, UW-Extension Information Systems staff, and others.

3. Expanding and Maintaining Mailing Lists

Currently the NWPEP mailing list, predominately Extension specialist listings, includes over 700 records. The list is maintained on the UW-CALS computer system (AGVS1) by modem from FPL.

Mailings and postage billing (e.g., the *Extend* newsletter) are handled through the UW-CALS Addressing Office with direct computer access to appropriate address lists on the AGVS1 system.

To date, mailing list maintenance is done by NWPEP staff, since available secretarial help do not access the AGVS1 system on campus.

NWPEP mailing lists are also available for FPL mailings as needed (e.g., Annual FPL Research Conference and Technology Transfer Newsletter mailings).

4. Model Program Developments

a) Full-text databases

The initial full-text retrieval textbase package was completed dealing with exterior wood finishing. Using commercial software (IZE), the recent major research publications:

- Ag Handabook 647 "Finishing Wood Exteriors:. . ."
- FPL-GTR-60 "Chronicle of 65 Years of Wood Finishing Research at the Forest Products Laboratory"

plus extensive information on finishing and maintaining wood floors were incorporated into the textbase.

Extension and other professionals can quickly access this unique textbase on a PC microcomputer. Text on a finishing subject can be retrieved using keywords or full-text searches. Phone inquiries can be answered directly from the computer screen. Links can also be made to related database files and to word processing software to download selected textbase information for creating letter responses.

Field testing has been underway by a number of Extension specialists and county staff using a low-cost, run-time IZE Reader version of the retrieval software. Responses, though slow, have been very positive about the full-text retrieval package. Extensive use of the database will require some training opportunities to develop skills in using the application software.

The "Finishes" textbase represents one of several full-text databases under development to facilitate technology transfer of wood products research information through CES.

b) CD-ROM Technology

The NWPEP is an evaluation site for the national Extension CD-ROM pilot project, a collaborative effort of ES-USDA, Virginia Tech CES, Minnesota Extension Service, and the National Ag Library.

Demonstrations were conducted at FPL to acquaint staff with the potential uses of CD-ROM technology and to evaluate the sample disc.

A major joint NWPEP/FPL project is underway on the development of a custom wood-related CD-ROM disc. This is discussed in Section 7.

Forest Service Engineering is also developing a sample CD-ROM disc, primarily for internal FS use with potential access on the FS Data General (DG) computer network. Plans are to beta test and demonstrate the FS disc for FPL staff.

CD-ROM databases will be an important wood products information resource for CES and the Forest Service. Network fileserver access will ultimately make CD-ROM information available to other professionals and industry clientele.

Experience gained in evaluating CD-ROM pilot projects will be helpful in developing the custom wood-based CD-ROM disc. Importantly, we will be gaining experience in the in-house preparation of information for the mastering of the disc. Creation and updating of CD-ROM discs to be accessed from local file servers will be an integral part of evolving internal and national communications systems.

5. FPL Technology Transfer Collaboration

a) IMPROVE

NWPEP collaborated extensively in implementing the national Integrated Mill Production and Recovery Options for Value and Efficiency (IMPROVE) system Technology Transfer Plan (February 10, 1988). Development of this FPL initiative is shared with the FPL Processing System Optimization RWU-4719, FPL-Information Services, and FS-S&PF-FPL.

IMPROVE includes eight major programs (some under development), each consisting of several computer routines that analyze aspects of a manufacturing process or lumber handling activity.

Major NWPEP effort was given to the Lumber Product Size Analysis (LPSA) routine. LPSA provides the basis for a statistical quality control program for monitoring machine centers to establish and maintain acceptable levels of conversion efficiency.

Assistance was given in mill studies and the technical critiquing of technical background papers and a mill troubleshooting manual.

There is an urgent need to develop training materials for CES and service professionals, as well as industry clientele, to effectively use the IMPROVE tools. NWPEP will collaborate in this effort.

b) Timber Bridges

Modern timber bridges are a viable alternative for rural America. Nearly one-half of the nation's bridges are considered deficient. 80% of the nation's bridges are in rural areas. NWPEP supported the national Timber Bridge Technology Transfer Plan (February 8, 1988) through media publicity and through *Extend* newsletter articles. The national initiative is directed through the Hardwood Timber Bridge Information Resource Center in Morgantown, WV. NWPEP efforts are coordinated with the FPL TT Coordinator.

The FPL is also involved in the National Timber Bridge Initiative. FPL, in conjunction with the National Forest System, has been active in timber bridge research for over 20 years. Current research continues in the development and testing of new bridge designs, such as the stressed-deck bridge. FPL scientists will monitor some of the demonstration bridges constructed under the National Initiative to determine their long-term performance.

Preliminary plans have been discussed for developing a Timber Bridge CD-ROM disc and collaborating in the preparation of an Ag Handbook based on the new FS Timber Bridge Manual.

NWPEP has cooperated with FPL researchers (RWU-4716 Wood Products and Structures, and RWU-4515 Engineering Design Criteria) in arranging for industry site visits to view hardwood laminating practices. A focus of the National Initiative is to utilize local hardwoods in the design and fabrication of bridges.

c) Energy

The current Mideast crisis underscores the growing importance of alternative energy sources. NWPEP highlighted energy-related research results through the *Extend* newsletter.

The *Forest/Energy* newsletter of the FS Energy Coordinator, distributed internally via the DG computer network, has been placed on the UW-Extension WISPLAN computer bulletin board for access and downloading nationwide.

d) Exterior Wood Finishing

NWPEP participated, as a team member, in the development of the Technology Transfer Plan (January 26, 1989) - "Finishing Wood Exteriors in the South". Ag Handbook 647 "Finishing Wood Exteriors: . . ." is under revision to reflect environmental conditions in the South. A full-text database, using IZE retrieval software, will be developed as soon as the electronic file is available. This version will provide a textbase applicable to southern states conditions.

e) EXTEND Newsletter

Three editions of the *Extend* newsletter were prepared and distributed nationwide. The 12-page newsletters were prepared in-house by NWPEP staff on a PC microcomputer system. Camera-ready copy was delivered to UW-Ag Publications for printing and mailing. This effort was done in close cooperation with FPL-Information Services staff.

Work continues on the potential of using the electronic communications network for accessing and distributing fully-formatted document files. The *Extend* newsletter is created as a Postscript (ASCII) file. The large file can be compressed 75% or more and transferred electronically for local printing on a Postscript laser printer. Such files could be accessed from a file server and printed on demand as needed. These opportunities will be promoted to provide cost-effective, efficient, and timely means of information distribution.

f) Other Technology Transfer Activities

- **ANSWER INQUIRIES** - Numerous UW and FPL calls and mail queries were referred. NWPEP collaborates closely with FPL-Information Services and research staff in responding to public needs.

- **OFFICE VISITOR CONFERENCES** - A number of FPL guests and visitors met with NWPEP staff who provided Extension program background and information on specific areas of interest.

- **TECHNOLOGY OPPORTUNITY series** - A draft was provided for the Techline report on NWPEP.

- **1990 FPL ANNUAL RESEARCH CONFERENCE (October 1990)** - NWPEP staff attended the conference and participated in the poster session demonstrating the full-text retrieval package "Finish".

- **APPLIED RESEARCH** - Several woodusing industries requested assistance in resolving production problems and identifying opportunities for new product lines. Small-scale tests were carried out in collaboration with FPL research scientists on wood drying, finishing, and gluing problems. Reports were prepared outlining the test results and recommendations. As a result, the problems were resolved and important contacts were established for industry with FPS and CES.

6. *FPL Research Review*

NWPEP participated in the FPL supervisory review of Research Work Unit 4719 - Processing System Optimization and Research Work Unit 4707- Wood Surface Chemistry and Protection.

Currently, these RWU's represent priority emphasis areas for technology transfer through NWPEP. The reviews provided a better understanding of the unit mission and the status of ongoing and projected research.

7. *NWPEP/FPL Special Projects*

The FPL has identified funding support for collaborative technology transfer projects from the FPL line budget. Through coordinated planning with the FPL-Information Services staff, several projects were identified for FY-90:

- Assist in the development, testing, and distribution of the full-text retrieval database "Finish" for use at FPL and by state U & M specialists. This project has been completed and plans for distribution are underway.

- Develop a prototype full-text retrieval database for FPL Information staff to facilitate handling of inquiries, and for user training and evaluation of the database. The prototype database has been prepared and demonstrated. Information staff currently cannot use the database without access to a PC computer. They now operate solely on the Forest Service DG computer system.

- Develop and produce a pilot wood-based CD-ROM disc, incorporating selected major FPL publications for full-text/graphics retrieval, and demonstrate/evaluate the technology for use by FPL, S&PF, and state U&M staff.

Development work is underway, under the leadership of Bob Mosdal, through a contract with Meridian Data, Inc., Scotts Valley, CA to use commercial software and hardware to produce a custom disc in-house. Scheduled completion of the disc is January 1991. Eleven selected publications will be included:

- Ag Handbook 72 - Wood Handbook
- Ag Handbook 607 - Tropical Timbers of the World
- Ag Handbook 101 - Wood : Color and Kinds
- Ag Handbook 647 - Finishing Wood Exteriors . . .
- FPL-GTR-60 - Chronicle of 65 Years of Wood Finishing Research . . .
- Ag Handbook 73 - Wood-Frame House Construction
- Ag Handbook 188(rev.) - Dry Kiln Operator's Manual
- FPL-GTR-57 - Dry Kiln Schedules . . .
- Ag Handbook 531 - Storage of Lumber
- Ag Handbook 402 - Air Drying of Lumber
- Ag Handbook 528 - Drying Eastern Hardwood Lumber

NATIONAL WOOD PRODUCTS EXTENSION PROGRAM

MAILING LISTS (1990)

Wisconsin

- ☐ 1.1 Wisconsin Cooperative Extension Service

U.S. Forest Products Laboratory

- ☐ 2.1 Researchers & Administrators

Cooperative Extension Service

- ☐ 3.1 ES-Administrative Council
- ☐ 3.2 Natural Resources & Rural Development Staff
- ☐ 3.3 CES Directors & 1890/Tuskegee Administrators
- ☐ 3.4 Extension Forest Products Specialists
- ☐ 3.5 Extension Housing & Energy Specialists
- ☐ 3.6 Extension Agricultural Engineers
- ☐ 3.7 CRD Specialists
- ☐ 3.8 Rural Development Centers
- ☐ 3.9 Other Extension Specialists & Agents

Universities

- ☐ 4.1 Wood Products Researchers & Educators
- ☐ 4.2 NAPFSC Officers & Committees

Forest Products Utilization Specialists

- ☐ 5.1 State/Regional/National FPU Specialists

Forest Service (not FPL)

- ☐ 6.1 Forest Products & Harvesting Researchers
- ☐ 6.2 RC & D

State

- __7.1 State Foresters

Legislators

- __8.1 Legislators/Aides
- __8.2 Legislative Committees

Wood-based Industry Associations

- __9.1 NFPA
- __9.2 Others

NWPEP

- __10.1 Advisory Committee

Media

- __11.1 Specialized Magazines
- __11.2 Professional Journals
- __11.3 Newspapers
- __11.4 Radio & Television

Others

- __12.1 Foreign
- __12.2 Other Professional

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